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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Yasuda, et al.

Filed.:

Filed Concurrently Herewith

Title of Invention:

END-CAPPED POLYFLUORENES, FILMS AND

DEVICES BASED THEREON

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### PRELIMINARY AMENDMENT

**Assistant Commissioner for Patents** 

Box PCT

Washington, D.C. 20231

Sir:

Before the issuance of the first Office Action, please amend the above-identified application as follows:

#### **IN THE CLAIMS:**

Please amend claims 3, 9, 10, 12, 14, 16, 18, 20, 21, 22, 25, 26, 28, 29 and 30 as follows:

3. (Amended) A polyfluorene according claim 1, wherein the charge-transporting moiety is selected from the group comprising:

$$R_1$$
 $R_2$ 
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_2$ 
 $R_4$ 
 $R_5$ 
 $R_6$ 
 $R_7$ 
 $R_8$ 
 $R_8$ 
 $R_8$ 
 $R_8$ 
 $R_9$ 
 $R_9$ 

- 9. (Amended) A polyfluorene according to claim 7 cross-linked to a polyfluorene according to claim 7 via at least one linkage selected from the group comprising a 9,9-spirobifluorene-linkage, a bifluorenyl-linkage, a bifluorenylidene-linkage and an  $\alpha, \omega$ -difluorenylalkane-linkage with a length of the alkane spacer in the range from 1-20 C-atoms.
- 10. (Amended) A polyfluorene according to claim 7 which has at least one color-tuning moiety incorporated into the main chain.
  - 12. (Amended) A polyfluorene according to claim 7, which is liquid-crystalline.
  - 14. (Amended) A polyfluorene according to claim 7, which is amorphous.
  - 16. (Amended) A film incorporating a polyfluorene according to claim 15.
- 18. (Amended) A film according to claim 16, incorporating at least one other substance.
  - 20. (Amended) A film according to claim 16, deposited on an alignment layer.
- 21. (Amended) A film according to claim 16 having a thickness ranging from 10 nm to 2  $\mu m$ .
- 22. (Amended) A device selected from the group comprising FETs, photovoltaic elements, LEDs and sensors, incorporating a polyfluorene according to claim 16.
- 25. (Amended) A device selected from the group comprising FETs, photovoltaic elements, LEDs and sensors, incorporating a film according to claim 16.
  - 26. (Amended) Use of a polyfluorene according to claim 1 in a film.

- 28. (Amended) Use of a polyfluorene according to claim 1 in a device selected from the group comprising FETs, photovoltaic elements, LEDs and sensors.
- 29. (Amended) Use of a film according to claim 16 in a device selected from the group comprising FETs, photovoltaic elements, LEDs, and sensors.
- 30. (Amended) Use of a device according to claim 22 in combination with a liquid-crystal display (LCD).

# **REMARKS**

Claims 3, 9, 10, 12, 14, 16, 18, 20, 21, 22, 25, 26, 28, 29 and 30 have been amended to eliminate multiple dependencies. Attached hereto is a marked up version of the changes made by the current amendment. The attached page is captioned "<u>Version with markings to show</u> <u>changes made.</u>" The filing fee has been calculated based upon this amendment to the claim.

Respectfully submitted,

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10/019200 JC13 Rec'd PCT/PTO 20 DEC 2001 Patent 450117-03703

## **VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Claims 3, 9, 10, 12, 14, 16, 18, 20, 21, 22, 25, 26, 28, 29 and 30 has been amended as follows:

3. (Amended) A polyfluorene according to [any of claims 1 - 2] <u>claim 1</u>, wherein the charge-transporting moiety is selected from the group comprising:

$$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \end{array} \end{array} \end{array} \begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \end{array} \begin{array}{c} \\ \\ \end{array} \end{array} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \end{array} \begin{array}{c} \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \end{array} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \end{array} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \end{array} \begin{array}{c} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\$$

- 9. (Amended) A polyfluorene according to [any of the foregoing claims] claim 7 cross-linked to a polyfluorene according to [any of the foregoing claims] claim 7 via at least one linkage selected from the group comprising a 9,9-spirobifluorene-linkage, a bifluorenyl-linkage, a bifluorenyl-linkage and an . , -difluorenylalkane-linkage with a length of the alkane spacer in the range from 1-20 C-atoms.
- 10. (Amended) A polyfluorene according to [any of the foregoing claims] <u>claim 7</u> which has at least one color-tuning moiety incorporated into the main chain.
- 12. (Amended) A polyfluorene according to [any of the foregoing claims] <u>claim 7</u>, which is liquid-crystalline.
- 14. (Amended) A polyfluorene according to [any of claims 1-11] <u>claim 7</u>, which is amorphous.
- 16. (Amended) A film incorporating a polyfluorene according to [any of the foregoing claims] claim 15.
- 18. (Amended) A film according to [any of claims 16 17] <u>claim 16</u>, incorporating at least one other substance.
- 20. (Amended) A film according to [any of the claims 16 19] claim 16, deposited on an alignment layer.
- 21. (Amended) A film according to [any of the claims 16-20] claim 16 having a thickness ranging from 10 nm to 2  $\mu$ m.

- 22. (Amended) A device selected from the group comprising FETs, photovoltaic elements, LEDs and sensors, incorporating a polyfluorene according to [any of claims 1-15] claim 16.
- 25. (Amended) A device selected from the group comprising FETs, photovoltaic elements, LEDs and sensors, incorporating a film according to [any of claims 16 21] claim 16.
- 26. (Amended) Use of a polyfluorene according to [any of claims 1 15] claim 1 in a film.
- 28. (Amended) Use of a polyfluorene according to [any of claims 1 15] claim 1 in a device selected from the group comprising FETs, photovoltaic elements, LEDs and sensors.
- 29. (Amended) Use of a film according to [any of claims 16 21] <u>claim 16</u> in a device selected from the group comprising FETs, photovoltaic elements, LEDs, and sensors.
- 30. (Amended) Use of a device according to [any of claims 22 25] claim 22 in combination with a liquid-crystal display (LCD).